

L-Earning

Using incentive to achieve more effective learning

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This paper describes an original E-Learning system in which children **earn** their internet access by completing educational activities. The activities are simply configurable web applications that award a number of digital credits upon completion. These credits are then used to gain internet access. When credits run out then the child can return to a self-serve kiosk to earn more credits by completing more activities.

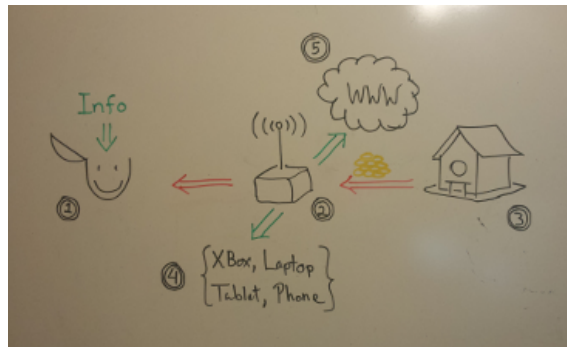


Figure 1: Educational web activities are fed from the self-serve credit-feeder website at right (3). The child sits behind a WiFi access point (1,2). The access point is the kiosk used for gaining internet access with earned credits. It runs its own website with a credit-meter. When the meter is running it consumes credits and grants internet access (5) to the child's devices (4). When the meter is not running the child can only reach the external credit-feeder website (3) and any other whitelisted sites.

The above figure summarizes the scheme: at the center is a WiFi access point device which presents the child with two simple controls which the child can use to gain internet access. But first the child must earn credits by performing an activity at the whitelisted credit-feeder website, represented as a bird-feeder in Figure 1. Back at the local credit-meter website (typically opened in a second tab of the child's browser) the child pushes a single button to conduct a credit-transfer from the remote credit-feeder website to the local credit-meter website. Then, with the press of a second button, the child starts the credit-meter running, which in-turn grants internet access to the child's WiFi devices, such as phone, laptop, xbox, playstation, tablet, etc.

This arrangement allows a parent to supplement their child's online activities with periodic sessions of parent-defined content. During preliminary investigations several positive outcomes were observed. First and foremost, the intended outcomes of each activity were reached using the child's own motivation rather than needing to be told to perform. While the motivation was indeed to earn credits and gain internet access, things like focus, attention to detail and making an effort, in general, were also consistently present regardless of the activity, suggesting that the method has potential for the delivery of arbitrary subject matter.

Thus, the ability of this scheme to reach its potential as a tool for improved delivery of material across a wide-range of subject matter is directly proportional to the number of available activities covering a corresponding range of subject matter as well as the number and diversity of developers creating those activities. Given such an array of activities and a community of developers, the added ability to ensure that effort is made and learning goals are actually achieved provides value which many parents would, arguably, be willing to pay for through a subscription fee.

How could this work without scaring-off potential contributors with the mention of money? One solution is to pass that money directly to the developers without compromising the values of openness and software freedom held by so many. For example, each activity could be released as free software and be developed to work both inside and outside of the credit-feeder platform. Furthermore, if the subscriber is given the ability to distribute their subscription fee among developers as they see fit then we have created a healthy marketplace for free education software which compensates developers and encourages innovation and quality.

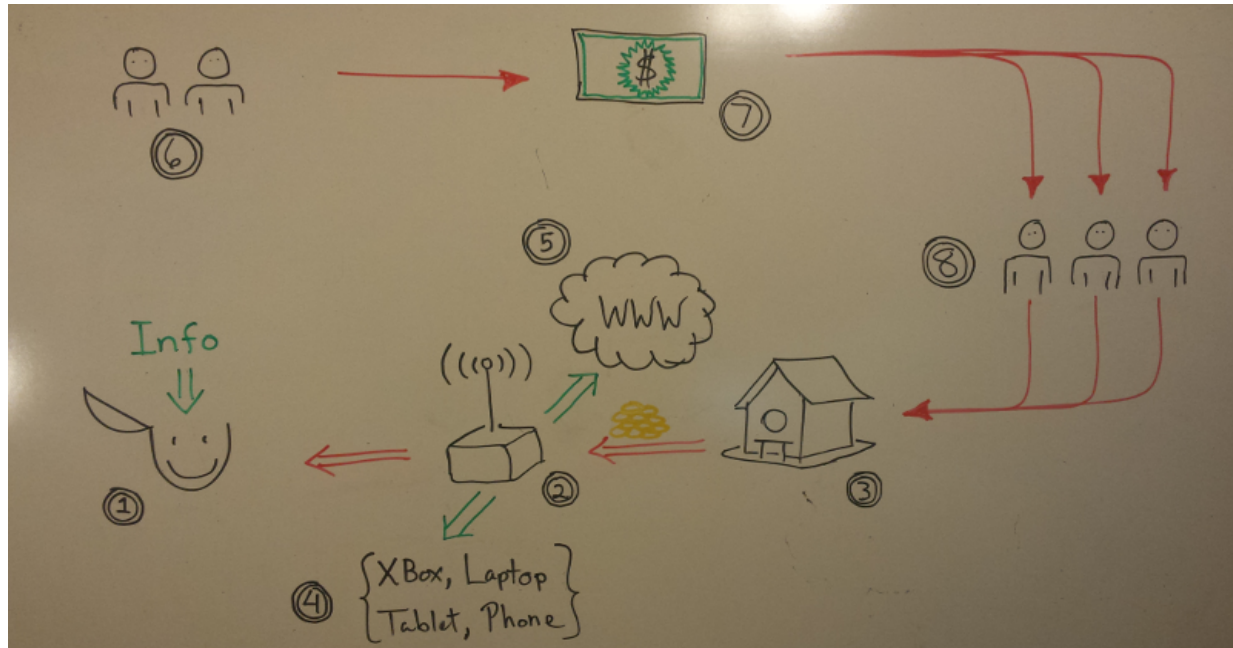


Figure 2: An ecosystem to stimulate creation of free education software. Parents (6) subscribe to the platform because it provides them the valuable capability to ensure that their children are making an effort when performing activities. Developers (8) are provided with an incentive (7) beyond altruism or merely showcasing their abilities for free, while at the same time upholding the common values of software freedom espoused by many developers.

Learning platforms for children, such as GCompris and OLPC's Sugar, have been evolving steadily over the past decade with the help of dedicated communities of developers who volunteer their efforts and ideas. Recently the prototype credit-earning activities used to investigate the credit-earning system described in this paper were adapted to run within OLPC's sugar-web environment. Adapting the activities was simple and it would be equally simple to adapt activities designed for the sugar-web environment to award credits upon completion of a

defined learning objective. It seems that the benefits offered through a credit-earning implementation, namely: increased effectiveness of activities, incentive to developers and an ecosystem that stimulates development of free education software, would justify the work to add credit-feeder infrastructure to one or more of these host platform, as well.

Conclusion

Requiring kids to earn their internet access from a self-serve education platform can serve as an effective means to supplement their education and develop a host of other life-skills, such as time management, accountability and attention to detail. The desire for credits serves as a single point of motivation which can be harnessed to teach any subject matter through well-designed activities. Enabling parents to control distribution of a subscription fee to activity developers of their choice keeps the user and developer communities connected with value flowing in both directions. Requiring free/libre licensing and usability outside of this Django-powered credit-earning platform stimulates development of free/libre software which thereby empowers children everywhere.

[1] Stanislas Dehaene, Conditional Learning
(Cognitive Scientist, Researcher w.r.t read, write, count)

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